

REMARKS

The present Amendment amends claims 1, 4, 5, and 11-13, cancels claim 2, and leaves claims 3, 6-10, 14, and 15 unchanged. Therefore, the present application has pending claims 1 and 3-15.

Drawings

Amendments to Figs. 1, 8, 10, 12-14 and 22 were submitted along with the Amendment filed on April 24, 2007. The Annotated Marked-Up Drawings were scanned into Public PAIR as pages 10-16 of the "Applicant Arguments/Remarks Made in an Amendment", and the Replacement Sheets were scanned into Public PAIR as pages 1-7 of the "Drawings" filed on April 24, 2007. However, the Examiner has not acknowledged receipt of these drawings or whether these drawings are acceptable. Therefore, Applicants respectfully request the Examiner to indicate whether the drawings filed on April 24, 2007 are acceptable.

35 U.S.C. §102 Rejections

Claims 1-15 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,977,927 to Bates et al. ("Bates"). As previously indicated, claim 2 was canceled. Therefore, this rejection regarding claim 2 is rendered moot. Regarding the remaining claims 1 and 3-15, this rejection is traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 1 and 3-15 are not taught or suggested by Bates, whether taken individually or in combination any of the other references of record. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe features of the present invention. Specifically, amendments were made to the claims to more

clearly recite that the present invention is directed to a network storage system for supplying a storage to a plurality of clients and a network storage system connected to a network to which a plurality of clients are connected as recited, for example, in independent claims 1, 11 and 12.

The present invention, as recited in claim 1, and as similarly provided in claims 11 and 12, provides a network storage system for supplying a storage to a plurality of clients through a network. The system includes a first device provided with a disk device, and a second device for managing a connection to the clients. According to the present invention, the first device allocates a portion of the disk device to the second device. Also according to the present invention, the second device divides the portion allocated by the first device into a plurality of portions, and allocates each of the portions to a respective one of each of the clients. Furthermore, according to the present invention, as recited in claim 1, and as similarly recited in claim 11, the second device is provided with means for translating a source network address of a client to a specific network address of the second device, the specific network address to be transferred to the first device, such that the means for translating translates each of a plurality of network addresses of each of the plurality of clients to the specific network address of the second device. Also according to the present invention, as recited in claim 1, and as similarly recited in claims 11 and 12, the second device adds a preset name of the portion allocated by the first device to a file name included in the access request received from the client and transfers the file name along with the preset name to the first device. The prior art does not disclose all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record,

particularly Bates, whether taken individually or in combination with any of the other references of record.

Bates teaches a method and system of allocating storage resources in a storage area network. However, there is no teaching or suggestion in Bates of the network storage system for supplying a storage to a plurality of clients or the network storage system connected to a network to which a plurality of clients are connected, as recited in claim 1, and as similarly recited in claims 11 and 12 of the present invention.

Bates discloses a system for allocating storage resources in a storage area network. A logical unit number (LUN) mapper receives at least one storage request parameter and maps the storage request parameters to at least one physical LUN. The LUN mapper includes at least one LUN map. The storage request parameters include a host id parameter, a target LUN parameter, and a target host bus adaptor (HBA) parameter. The LUN mapper uses the host id parameter to select the one of the LUN maps that corresponds to the host id parameter. The LUN mapper applies the target LUN parameter and the target HBA parameter to the selected LUN map to locate the physical LUN(s) stored in the selected LUN map. The LUN mapper issues the received read/write storage request to at least one storage device that houses the physical LUN(s). The one or more storage devices are located in the storage area network.

One feature of the present invention, as recited in claim 1, and as similarly recited in claims 11 and 12, includes where the first device allocates a portion of the disk device to the second device, and where the second device divides the portion allocated by the first device into a plurality of portions, and allocates each of the portions to a respective one of each of the clients. Bates does not disclose this

feature. In the Response to Arguments section of the Office Action, the Examiner indicates that the storage device 106 of Bates is interpreted as being the first device of the present invention, and that the storage allocator 104 of Bates is interpreted as being the second device of the present invention. The Examiner alleges that the storage device 106 allocates all storage locations to storage allocator 104, by processing read/write requests from the storage allocator 104, and that the storage allocator 104 then allocates only a portion of data locations on the storage device 106 to a number of requesting servers 102. In reliance upon the Examiner's interpretation, Applicants submit that Bates does not teach where a "portion" of the disk device is allocated to the second device. That is to say, a "portion" is defined as a limited part set off or abstracted from a whole (*see, e.g., Merriam-Webster Online at <http://www.merriamwebster.com>*). Contrary to the present invention, the Examiner's interpretation of Bates requires that "all storage locations" are allocated to the storage allocator 104 (i.e., second device), which is quite different from the present invention, where only a portion of the storage locations is allocated to the second device. Therefore, Bates does not teach or suggest the invention, as claimed.

Another feature of the present invention, as recited in claim 1, and as similarly recited in claim 11, includes where the second device is provided with means for translating a source network address of a client to a specific network address of the second device, the specific network address to be transferred to the first device, such that the means for translating translates each of a plurality of network addresses of each of the plurality of clients to the specific network address of the second device. Bates does not disclose this feature. To support the assertion that Bates teaches a means for translating, the Examiner alleges that "this is an inherent

feature of Bates.” More specifically, the Examiner alleges that because Bates uses a storage area network (SAN), which is based on the OSI model that uses protocols such as TCP/IP, then address translation is inherent in SANs that use TCP/IP. However, Applicants submit that Bates not either expressly or inherently teach that the second device includes a means for translating, in the manner claimed.

More specifically, the storage allocator 104 (i.e., the second device) of Bates does not include a means for translating, as claimed. Network Address Translation (NAT), to which the Examiner refers as being an inherent feature, is an Internet standard that enables a local-area network (LAN) to use one set of IP addresses for internal traffic and a second set of addresses for external traffic. A NAT box located where the LAN meets the Internet makes all necessary IP address translations (see, e.g., definition of “NAT” found at <http://www.webopedia.com>). Bates discloses a NAT box, for example, as shown in Fig. 8, item 812, and as described in column 6, lines 25-38. The network 800 includes the switch 812, which filters and forwards packets between LAN segments. On the other hand, the storage allocator 104 of Bates does not perform the functions of a NAT box, and even further, does not perform the functions of the switch 812. As shown in Fig. 8, item 818, and as described in column 7, lines 3-11, SAN appliance 818 provides the required connectivity between the storage device networking (i.e., disk devices) and hosts and servers 814 and 816, and provides the functionality of the storage allocator. That is to say, the storage allocator (i.e., second device) of Bates is separate and apart from the switch 812, and there is no teaching or suggestion in Bates of where the storage allocator includes a means for translating, in the manner claimed.

Yet another feature of the present invention, as recited in claim 1, and as similarly recited in claims 11 and 12, includes where the second device adds a

preset name of the portion allocated by the first device to a file name included in the access request received from the client and transfers the file name along with the preset name to the first device. This feature is described, for example, with reference to Fig. 14 of the present invention, and the accompanying text (see, e.g., page 21, line 3 to page 22, line 22). The present invention, as described in the cited text, includes where the read request 1202 includes the name of the file /user/A that the client 1101 has requested to read. This makes the client 1201 think that the client management device 1220 has the target disk. The client management device 1201 receives the request, and enables the virtual network file facility to translate the disk address and add /HUB01 to the read address, as shown in the packet 1206, so that the address is translated to /HUB01/user/A. The /HUB01 is a preset name of the area allocated by the first device. If the address /HUB01/user/A is not stored in the cache 1220, then the packet 1206 is passed to the IP address translation facility 1208, which translates the source address of the client to the IP address of the client management device, as shown in packet 1210. The address /HUB01/user/A is transferred to the network file device 1212, as shown in the packet 1210. Bates does not disclose this feature. Based on the Examiner's interpretation of Bates, all storage locations of the storage device 106 are allocated to the storage allocator 104 (see the Examiner's Response to Arguments). Accordingly, because all the storage locations are so allocated, Bates does not teach where each portion of the whole storage device has a preset name (e.g., HUB01 or HUB02) for the portion allocated by the storage device (i.e., first device), as in the present invention.

Therefore, Bates fails to teach or suggest "wherein said first device allocates a portion of said disk device to said second device" and "wherein said second device divides said portion allocated by said first device into a plurality of portions, and

allocates each of the plurality of portions to a respective one of each of said plurality of clients” as recited in claim 1, and as similarly recited in claims 11 and 12.

Furthermore, Bates fails to teach or suggest “wherein said second device is provided with means for translating a source network address of a client to a specific network address of the second device, the specific network address to be transferred to said first device, such that the means for translating translates each of a plurality of network addresses of each of said plurality of clients to the specific network address of the second device” as recited in claim 1, and as similarly recited in claim 11.

Even further, Bates fails to teach or suggest “wherein said second device adds a preset name of said portion allocated by said first device to a file name included in said access request received from said client and transfers said file name along with said preset name to said first device” as recited in claim 1, and as similarly recited in claims 11 and 12.

Therefore, Bates does not teach or suggest the features of the present invention, as recited in claims 1 and 2-15. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §102(e) rejection of claims 1 and 2-15 as being anticipated by Bates are respectfully requested.


The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references used in the rejection of claims 1 and 2-15.

In view of the foregoing amendments and remarks, Applicants submit that claims 1 and 2-15 are in condition for allowance. Accordingly, early allowance of claims 1 and 2-15 is respectfully requested.

To the extent necessary, the Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing Attorney Docket No. H-1105).

Respectfully submitted,

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